

REMARKS

A petition to extend the time for response by one (1) month is enclosed herewith.

Claims 13-34 were previously pending in the application. By the Amendment, Claims 14 and 32 have been amended, Claims 15 – 17 and 34 have been canceled without prejudice, and new Claims 35 - 37 have been added. Claims 13, 14, 18 – 33, and 35 – 37 are currently pending in the present application.

Applicants gratefully acknowledge the Examiner's granting a personal interview in the present case on 19 August 2008. During the interview, patents to Suzuki et al., Plimpton, MacWilliams et al., Hicken, Marques et al., Lucht et al., Navato and Tiru et al. were discussed. It was determined that the Applicants would provide claims addressing a combination claim involving a refrigerated compartment, and also a go and no-go indicator and criticality of the location of indicator in the refrigeration compartment using the pictograms, and the location of the indicator within the housing. Although no agreement was reached, a more complete understanding of the invention was achieved.

The drawings and specification are under objection. Both objections arise from Claim 34. Further, Claim 34 has been rejected under 35 USC § 112 as being indefinite. Claim 34 has been cancelled by the present amendment and, accordingly, both objections and the rejection under 35 USC §112 are now moot and should be withdrawn.

Substantively, the claims stand rejected under the cited prior art of record as follows:

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- Claims 13, 14 and 19 were rejected under 35 USC §102(b) as being anticipated by US Patent No. 4,161,557 to Suzuki et al. (Suzuki '557).
- Claims 13, 14 and 19-22 were rejected under 35 USC §102(b) as being anticipated by US Patent No. 4,738,549 to Plimpton (Plimpton '549).
- Claims 15-17 were rejected under 35 USC §103(a) as being unpatentable over Suzuki '557.
- Claims 16-18 were rejected under 35 USC §103(a) as being unpatentable over Plimpton '549.
- Claims 23-24 were rejected under 35 USC §103(a) as being unpatentable over Plimpton '549 in view of US Patent No. 6,385,869 to Mac Williams et al. (MacWilliams '869).
- Claims 25-28 were rejected under 35 USC §103(a) as being unpatentable over Plimpton '549 in view of GB Patent No. 2,318,870 to Hicken (Hicken '870 GB).
- Claims 29-30 were rejected under 35 USC §103(a) as being unpatentable over Plimpton '549 and Hicken '870 GB in view of MacWilliams '869.
- Claim 31 was rejected under 35 USC §103(a) as being unpatentable over Plimpton '549 and Hicken '870 GB in view of WO Patent No. 01/46661 to Marques et al. (Marques '661 WO).

- Claims 32 and 33 were rejected under 35 USC §103(a) as being unpatentable over US Patent Publication No. 2002/0149003 to Lucht et al. (Lucht '003) in view of US Patent No. 4030482 to Navato (Navato '482) and US Patent No. 6335200 to Tiru et al. (Tiru '200).

Independent Claim 13 recites a temperature-indicating element for a refrigeration device, having a backing. A thermochromic layer is applied to the backing for indicating a predetermined desired temperature. The thermochromic layer is enclosed between said backing and a transparent protective layer.

Independent Claim 25 recites a refrigeration device including a temperature-indicating element. The temperature-indicating element has a backing and a thermochromic layer is applied to the backing. The thermochromic layer has thermochromic pigment elements that change color at about +4° C for visually indicating a predetermined desired temperature. The thermochromic layer is enclosed between the backing and a transparent protective layer formed from a casting compound.

Independent claim 32 is directed to a temperature-indicating element for a refrigeration device including a backing and a thermochromic layer applied to the backing. The thermochromic layer has a pigment of a given color that changes to a pigment of a different color when the refrigeration device passes below a predetermined desired temperature. The thermochromic layer is enclosed between the backing and a transparent protective layer. Also provided is an indicator display including a contrast indication element for indicating that the refrigeration device has passed below the predetermined desired temperature.

The contrast indication element is disposed relative to the thermochromic layer such that the contrast indication element visually contrasts with the pigment of the different color and the extent of the visual contrast of the contrast indication element with the pigment of the different color being such that this visual contrast with the pigment of the different color is greater than a visual contrast of the contrast indication element with the pigment of the given color, whereby a user can perceive via the visual contrast of the contrast indication element with the pigment of the different color that the temperature of the refrigeration device has passed below the predetermined desired temperature.

In contrast to the temperature indicating element recited in Claim 13 of the present application and the refrigeration device recited in Claim 25 of the present application, the Suzuki '557 reference discloses a complex structure for polyvinyl butyral-liquid crystal film forming compositions and films that change color according to the temperatures encountered. There, 2, 3 or 4 component liquid crystal compositions are employed for providing a desired color response, a meso-phase or color-play temperature range at a desired temperature level and having a suitable width of temperature range and/or desired glass transition temperature. Preferably, the liquid crystals are selected to provide a color response in the meso phase range changing with increasing temperature from red through orange, yellow, green and blue to violet in the visible spectrum as the results of the light reflections are scattering by the liquid crystals (see Col. 4, lines 2-9, of Suzuki '557). In contrast to the present invention, Suzuki '557 uses a liquid crystals and neither teaches nor discloses the desirability of using thermochromic pigments as recited in independent claims 13, 25, and 32 of the present application. Moreover, Suzuki '557 does not provide an indication that a particular temperature level has been achieved but rather provides an arrangement in which different ranges are provided for indication of a temperature in a particular range.

The Office Action asserts that the Suzuki '557 patent discloses a temperature-indicating element for a refrigeration device. As seen in the Suzuki '557 reference, compositions number 14 through 16 [from a table of compositions useful in the Suzuki '557 patent], are useful, *inter alia*, for leak detection in refrigeration. Such leak detection does not provide the temperature indication inside the refrigeration device as provided by the present invention and, accordingly, reference to the Suzuki '557 patent is misplaced. Suzuki '557 is a patent directed to a chemical formulation with only hints of use in a refrigeration setting and that hint is as outlined above, that a composition from a table of useful compositions in the Suzuki '557 is useful for leak detection in refrigeration. Nothing about the Suzuki '557 reference indicates that it can be used for a generalized temperature indicator in a refrigeration device such as a household refrigerator.

Therefore, Suzuki '557 does not anticipate the present invention and, since Suzuki '557 does not disclose or suggest the present invention, the Suzuki '557 reference cannot be asserted to render the present invention obvious.

Plimpton '549 discloses a thermometer for immersion in a swimming pool. In an arrangement similar to that of Suzuki '557, Plimpton '549 discloses the use of liquid crystals to provide a temperature indication with a certain range, unlike the arrangement of the present invention that utilizes thermochromic pigments specifically chosen for the ability to change color at +4° C. In substantial contrast, Plimpton '549 chooses unknown liquid crystal agents that are operable from about 15° F to about 160° F (see Col. 2, lines 18-20, of Plimpton '549). Once again, like the device of Suzuki '557, the Plimpton '549 device teaches a liquid crystal display that indicates temperature over a desired range (see Column 3, line 7-10, of Plimpton '549). Accordingly, the Plimpton '549 device

does not provide an indication that a specific temperature has been achieved or is lower by using a visual perceptible symbol that is present when the temperature is +4° C and absent when the temperature is lower than +4° C.

The Plimpton '549 apparatus lacks the structure disclosed in the present claims. There is no backing as was cited in the present claims such that the pool thermometer could be useful in a refrigerator. As noted, the adhesive backing structure may be provided to permit placement of the thermometer wherever desired. However, according to Plimpton '549, a bore 45 through the casing 14 will allow attachment of a cord or the like so the thermometer may be hung from the side of a pool or hot tub to be drawn upward for temperature readings and then replaced into the water (Col. 4, lines 25–30). The fair teachings of the Plimpton '549 reference, or most any pool thermometer are to use a tether cord and take readings remotely rather than having to be in the water to determine the numerical water temperature.

Accordingly, the Plimpton '549 device cannot be said to anticipate or render the present invention obvious either alone or in any combination with any of the cited references.

Santacaterina '995 adds nothing to the Plimpton '549 discussion. Santacaterina '995, which was discussed during the interview, discloses a thermometer for medical use with a temperature scale similar to the temperature scale in the Plimpton '549 device. However, the carrier is different to allow its use as a medical device. Unlike Plimpton '549, and Santacaterina '995, the present invention provides a useful indication of a generalized temperature rather than a specific temperature for generalized interpretation. The icons that are formed in the covering provide food-like shapes so that when the food-like shape is darkened by the thermochromic layer achieving a certain temperature, the user can see at a glance what food may be stored, this without any knowledge of the

food properties. If the Santacaterina '995 or Plimpton '549 thermometers were used in the refrigerator setting, there would be no indication other than a numerical indication, of the temperature which may or not be interpreted correctly based on the knowledge of the reader. Accordingly, neither Plimpton '549 nor Santacaterina '995 discloses, teaches or suggests the structural features outlined in the claims of the present application.

Independent Claim 32 is not obvious over Lucht '003 in view of Navato '482 and further in view of Tiru '200. Unlike the present invention, the sensor system of Lucht '003 is configured for determining temperature changes on a surface and not an atmospheric condition such as the atmosphere within a refrigeration device as required by claim 32 of the present application. Lucht '003 states in Paragraph [0022] that the sensor system can be used as a safety feature or a thermal sensor for stoves, baking utensils or pans, radiator caps, cooling racks, paper/plastic coffee cups and lids, baby bottles, cooking utensils, cooking ware, fire safety, food packaging, instrument sterilization, novelty items, food preparation and handling equipment, warning labels, packaging film, microwave dishes, frozen food packages, beverage bottles, cable or wire coverings, motor and engine parts, braking systems, automobile or truck tires, bathtub coatings, and other substrates and/or articles for a visual indication of a temperature change is important. That extensive cataloging of applications for the Lucht '003 sensor system is devoid of any item wherein the sensor system is configured to determine atmospheric temperature. All of the items require that the sensor be affixed to the surface to indicate the surface temperature. The teachings of Lucht '003 do not include sensing atmospheric temperature conditions. Accordingly, Lucht '003 cannot be used to render the present invention obvious. Further, neither Navato '482 nor Tiru '200 make up the deficiencies in the application of Lucht '003 to the present claims. Therefore, it is

respectfully asserted that the outstanding rejection of claim 32 in light of Lucht '003 in view of Navato '482 and Tiru '200 is in error and should be withdrawn.

For these and other reasons, Suzuki '557 does not disclose the subject matter defined by independent Claim 13. Therefore, Claim 13 is allowable. Claims 14 and depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter. Further, for these and other reasons, Plimpton '549 does not disclose the subject matter defined by independent Claim 13. Therefore, Claim 13 is allowable. Claims 14 and 19-22 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Suzuki '557 does not teach or suggest the subject matter defined by Claims 15-17. Therefore, Claims 15-17 are allowable. In addition, Claims 15-17 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549 does not teach or suggest the subject matter defined by Claim 16-18. Therefore, Claims 16-18 are allowable. Further, Claims 16-18 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549 and MacWilliams '869, either alone or in combination, do not teach or suggest the subject matter defined by Claims 23-24. Therefore, Claims 23-24 are allowable. Also, Claims 23-24 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

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For these and other reasons, Plimpton '549 and Hicken '870 GB, either alone or in combination, do not teach or suggest the subject matter defined by independent Claims 25-28. Therefore, Claims 25-28 are allowable. In addition, Claims 25-28 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549, Hicken '870 GB and MacWilliams '869 either alone or in any combination, do not teach or suggest the subject matter defined Claims 29-30. Therefore, Claims 29-30 are allowable. In addition, Claims 29-30 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549, Hicken '870 GB, and Marques '661 WO either alone or in combination, do not teach or suggest the subject matter defined by Claim 31. Therefore, Claim 31 is allowable.

For these and other reasons, Lucht '003, Navato '482 and Tiru '200 either alone or in any combination, do not teach or suggest the subject matter defined by independent Claim 32. Therefore, Claim 32 is allowable. Claim 33 depends from Claim 32 and is allowable for the same reasons and also because it recites additional patentable subject matter.

New independent Claim 35 recites a refrigeration device including a body defining a refrigeration compartment for refrigerated storage of food items requiring a regulated environment for preservation and a temperature indication device. The refrigeration compartment is delimited by a plurality of interior surfaces and the body has a food item support member in the refrigeration compartment for supporting food items in the regulated environment at no more than the maximum temperature. Further, the temperature indication device is

disposed within the refrigeration compartment and has one hemisphere forming one half of the temperature indication device and another hemisphere forming the other half of the temperature indication device. Also, the temperature indication device includes a temperature sensitive display element disposed in the one hemisphere, the temperature indication device having a display and the temperature indication device being disposed in the refrigeration compartment with the temperature sensitive display element sufficiently proximate to the food item support member that a display characteristic of the display of the temperature sensitive display element varies in correspondence with predetermined temperature changes in a food item supported on the food item support member. As further recited in new independent claim 35, the display of the temperature sensitive display element is operable to display human readable indicia having a display characteristic that varies in correspondence with a predetermined temperature change in a food item supported on the food item support member and the human readable indicia is displayed in the one hemisphere of the temperature indication device in a manner such that human readable indicia is in an upright configuration for proper viewing when the one hemisphere of the temperature indication device is oriented in a predetermined installed orientation within the refrigerator compartment, and the temperature indicating device including an asymmetrical indicia for visually indicating to a user that the one hemisphere of the temperature indicating device is in the predetermined installed orientation, whereupon the asymmetrical human readable indicia is thereby in its upright configuration for proper viewing.

It is submitted that the prior art, particularly Suzuki '557, Plimpton '549, MacWilliams '869, Hicken 870, Marques'661, Lucht '003, Navato '482 and Tiru 200, taken singly or in any combination, does not disclose a refrigeration device as recited in Claim 35. More specifically, the prior art does not disclose, among

other things, a temperature indication device in a refrigeration compartment providing an elongate body and a temperature sensitive display element disposed adjacent one end of the body, wherein the temperature sensitive element includes a human readable asymmetrical indicia for providing provides a temperature indication of whether the refrigerating compartment is at a temperature capable of food item preservation, and wherein the body is formed having at least one asymmetrical indicia applied thereto for indicating to a user the proper orientation of the temperature indication device so that the asymmetrical human readable indicia is in the proper orientation for human readability. The proper orientation and location of the temperature indication device is critical to proper operation and therefore proper use by a user. Since the only indication on the temperature sensitive element is hidden until the temperature reaches proper refrigerating levels, the pictograms are the only clue available to a user regarding positioning of the device within a refrigeration compartment. Therefore, Applicants respectfully request allowance of independent Claim 35 and claims 36 and 37 depending ultimately therefrom.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of Claims 13, 14, 18 – 33, and 35 – 37 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,



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